

CLAIMS

1. Device (1) for cleaning of the abdominal cavity (20) in fish (30), comprising transport mechanism(s) for introduction of the fish (30) into the device (1); means
5 for detection of when the fish (30) enters the device (1); controls for controlling the method executed in the device (1); and actuators for providing movement of the moveable parts in the device (1), *characterised by* that the device (1) is further comprising a first cleaning tool (50) and a second cleaning tool (60), said cleaning tools (50, 60) being arranged to move in opposite directions in respect
10 to each other, after introduction in the abdominal cavity (20) of the fish (30).
2. Device in accordance with claim 1, *characterised by* that the cleaning tools are vacuum tools, scraping tools, brushing tools, spraying tools, or other tools suitable for cleaning the abdominal cavity in fish.
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3. Device in accordance with claim 1 or 2, *characterised by* that one or both cleaning tools (50, 60) are provided with a system enabling the cleaning tools to follow the inside of the abdominal cavity of the fish (30) with a desired pressure.
- 20 4. Device in accordance with claim 3, *characterised by* that the system is mechanical, hydraulic, pneumatic, or electric.
5. Device in accordance with one or more of the previous claims, *characterised by* that one or both cleaning tools (50, 60) are shaped in respect to
25 the abdominal cavity of the fish; that they have one or more openings for sucking up loose elements; and by that they have a scraping effect for loosening of unwanted elements.
6. Device in accordance with one or more of the previous claims,
30 *characterised by* that the device further comprises a number of additional tools on, or in addition to, the cleaning tools.

7. Device in accordance with one or more of the previous claims, *characterised by* that the device is provided as a module for placement over an existing production line with a V-type belt, a flat belt, rollers, or the like; or that it is provided as a module for placement between two parts of the production line, where the device comprises an incorporated V-type belt, a flat belt, rollers, or the like.
8. Device in accordance with one or more of the previous claims, *characterised by* that the device comprises a means for centering of fish, said means comprising two plates (45) which move down on the sides of the fish (30), and which can hold the fish (30) in its place by that the plates (45) move towards each other at the same time that they move down on the sides of the fish (30).
9. Method for cleaning the abdominal cavity (20) in fish, using the device in accordance with one or more of the previous claims, *characterised by* that the method comprises the following steps:
- a. introducing and centring a fish (30) in position under the first cleaning tool (50), with the tail in the direction of the movement;
 - b. lowering the first cleaning tool (50) into the abdominal cavity (20) of the fish (30), close to the head (80);
 - c. lowering the second cleaning tool (60) into the abdominal cavity (20) of the fish (30), next to the first cleaning tool (50), so that the first cleaning tool (50) is positioned between the fish's head (80) and the second cleaning tool (60);
 - d1. moving the second cleaning tool (60) in the direction of the tail (90) of the fish (30), whereby guts, organs, or leavings thereof (100) are cleaned away, and whereby the head (80) of the fish (30) is drawn completely against the first cleaning tool (50), and where one or both of the cleaning tool (50, 60) follow the shape of the abdominal cavity of the fish;
 - d2. possibly and if needed repeating step d1;

- e. lifting the first and the second cleaning tool (50, 60) out of the abdominal cavity (20) of the fish (30), whereby the fish (30) is released, and whereby the device is ready for the next cycle of the method.
- 5 10. Method in accordance with claim 9, *characterised by* that the fish is moved through the device with the head in the direction of the movement, and/or by that the second cleaning tool (60) is standing still while the first cleaning tool (50) is moving away from the second cleaning tool (60).
- 10 11. Use of the device and method claims 1-7 for fine cleaning of fish in fish industry.
12. Use of the centring device of claim 8 for centring of fish in fish industry.